

What is claimed is:

1. A method for treating an ocular neovascular disease in a patient, said method comprising:

a) identifying a feeder vessel associated with aberrant choroidal neovascularity (CNV); and

b) administering a photosensitizer to the patient in an amount effective to facilitate photodynamic therapy (PDT), wherein the photodynamic therapy comprises:

(i) delivering the photosensitizer to the feeder vessel identified in a); and

(ii) exposing the photosensitizer to photoactivating light having a wavelength absorbed by the photosensitizer for a time and at an intensity sufficient to inhibit or prevent blood flow from the feeder vessel to the choroidal neovascularity.

2. The method of claim 1, wherein the ocular neovascular disease is selected from the group consisting of ischemic retinopathy, intraocular neovascularization, age-related macular degeneration, corneal neovascularization, retinal neovascularization, choroidal neovascularization, diabetic macular edema, diabetic retina ischemia, diabetic retinal edema, and proliferative diabetic retinopathy.

3. The method of claim 2, wherein said neovascular disease is age-related macular degeneration.

4. The method of claim 1, wherein the photosensitizer is selected from the group consisting of indocyanine green, toluidine blue, aminolevulinic acid, texaphyrins, benzoporphyrin derivatives (BPD), phenothiazines, phthalocyanines, porphyrins, chlorins, purpurins, purpurinimides, bacteriochlorins, pheophorbides,

pyropheophorbides and cationic dyes.

5. The method of claim 4, wherein the benzoporphyrin derivative is verteporfin.

6. The method of claim 1, wherein the photosensitizer has an absorption spectrum of wavelengths between about 350 nm and 1200 nm.

7. The method of claim 1, wherein the photosensitizer has an absorption spectrum of wavelengths between about 400 nm and 900 nm.

8. The method of claim 1, wherein the photosensitizer has an absorption spectrum of wavelengths between about 600 and 800 nm.

9. The method of claim 1, wherein the photosensitizer is administered locally to the patient.

10. The method of claim 1, wherein the photosensitizer is administered parenterally to the patient.

11. The method of claim 1, wherein the feeder vessel associated with aberrant choroidal neovasculation is identified by image analysis.

12. The method of claim 11, wherein the image analysis is by fluorescein angiography.

13. The method of claim 11, wherein the image analysis is by high speed scanning laser ophthalmoscopy (SLO).

14. The method of claim 1, wherein the feeder vessel

associated with aberrant choroidal neovasculature is identified prior to, contemporaneous with, or subsequent to, administration of the photosensitizer by administering a photoimaging agent to the patient, wherein the agent fluoresces when exposed to light.

15. The method of claim 14, wherein the photoimaging agent is a light absorbing compound such as indocyanine green.

16. The method of claim 1, wherein the photoactivating light is coherent light.

17. The method of claim 16, wherein the coherent light is generated by a laser.

18. The method of claim 1, wherein the photoactivating light is non-coherent light.

19. The method of claim 1, further comprising administering an anti-angiogenic factor to the patient prior to, contemporaneous with, or subsequent to, the administration of photodynamic therapy.

20. The method of claim 19, wherein the antiangiogenic factor is an anti-VEGF factor.

21. The method of claim 1, wherein the photosensitizer is associated with a liposome.

22. The method of claim 21, wherein the liposome is targeted to neovascular tissue.

23. The method of claim 1, further comprising:

a) evaluating the treatment response using real-time

monitoring of the imaging agent intensity at the site of treatment of the feeder vessel subsequent to administration of photodynamic therapy; and

b) optionally re-exposing the site of treatment to light having a wavelength absorbed by the photosensitizer for a time and at an intensity sufficient to further inhibit or prevent blood flow from the feeder vessel to the choroidal neovasculature.

24. A method for treating an ocular neovascular disease in a patient, the method comprising:

a) administering a photoimaging agent to the patient and illuminating the retina of the patient with a fluorescence generating light such that the photoimaging agent in the patient's retina fluoresces and emits fluorescent light;

b) detecting the fluorescent light emitted from the patient's retina;

c) identifying aberrant choroidal neovasculature (CNV;

d) identifying a feeder vessel associated with the aberrant choroidal neovasculature of c); and

e) administering a photosensitizer to said patient in an amount effective to facilitate photodynamic therapy (PDT), wherein the photodynamic therapy comprises:

(i) delivering the photosensitizer to the feeder vessel identified in d); and

(ii) exposing the photosensitizer to photoactivating light having a wavelength absorbed by the photosensitizer for a time and at an intensity sufficient to inhibit or prevent blood flow from the feeder vessel to the choroidal neovasculature.

25. A system for performing photodynamic therapy on a feeder vessel associated with aberrant choroidal neovasculature in the retina of a patient, the system comprising:

a) a source of fluorescence generating light configured to illuminate the feeder vessel(s) associated with aberrant neovasculature;

b) a fluorescence detector configured to detect fluorescent light emanating from the feeder vessel;

c) a processor programmed to accumulate, store and analyze fluorescence response data from the fluorescence detector in response to fluorescent light from the feeder vessel; and

d) a source configured to deliver photoactivating light to the patient's retina, wherein the photoactivating light is absorbed by a photosensitizer proximally located in the feeder vessel associated with aberrant neovasculature.

26. The system of claim 25 wherein the source of photoactivating light comprises a laser having a characteristic wavelength of about 500 to about 800 nanometers.

27. The system of claim 25, wherein the source of fluorescence generating light comprises a laser having a characteristic wavelength of about 600 to about 700 nanometers.

28. The system of claim 25, wherein the source of fluorescence generating light comprises a laser having a characteristic wavelength of about 660 to about 670 nanometers.

29. The system of claim 25, wherein the source of photoactivating light comprises one of a light-emitting diode, laser diode, incandescent light bulb, gas discharge device, polymeric electroluminescent device, halogen bulb, chemical luminescence, vacuum fluorescence, radio frequency excited

gas, microwave excited gas, and cold cathode fluorescent tube.

30. The system of claim 25, further comprising an image stabilization source.

31. An apparatus for imaging and treating a feeder vessel associated with choroidal neovascularity, the apparatus comprising:

- a) a scanning laser ophthalmoscope including:
 - i) a source of fluorescence generating light having a first wavelength suitable for exciting a first photoimaging agent;
 - ii) a source of fluorescence generating light optionally having a second wavelength suitable for exciting a second photoimaging agent;
 - iii) a device for detecting images of the feeder vessel illuminated by the light source of i) or ii);
- b) a photoactivating light source for delivering therapeutic light to the feeder vessel, wherein the photoactivating light is absorbed by a photosensitizer proximally located in the feeder vessel; and
- c) an opto-mechanical linkage device for coupling the scanning laser ophthalmoscope with the photoactivating light source.

32. The apparatus of claim 31, wherein the first imaging agent is indocyanine green.

33. The apparatus of claim 31, wherein the second imaging agent is fluorescein.

34. The apparatus of claim 31, wherein the first wavelength is about 460nm to 500nm.

35. The apparatus of claim 31, wherein the second wavelength is about 780nm to 820nm.

36. The apparatus of claim 31, wherein the scanning laser ophthalmoscope is a confocal scanning laser ophthalmoscope.

37. The method of claim 31, wherein the photosensitizer is selected from the group consisting of indocyanine green, toluidine blue, aminolevulinic acid, texaphyrins, benzoporphyrin derivatives (BPD), phenothiazines, phthalocyanines, porphyrins, chlorins, purpurins, purpurinimides, bacteriochlorins, pheophorbides, pyropheophorbides and cationic dyes.

38. The method of claim 36, wherein the benzoporphyrin derivative is verteporfin.

39. The method of claim 31, wherein the photosensitizer has an absorption spectrum of wavelengths between about 350 nm and 1200 nm.

40. The use of a combination of a photosensitizer with photoactivating light in the manufacture of a photoreactive species in vivo for the treatment of a feeder vessel associated with aberrant choroidal neovasculature.